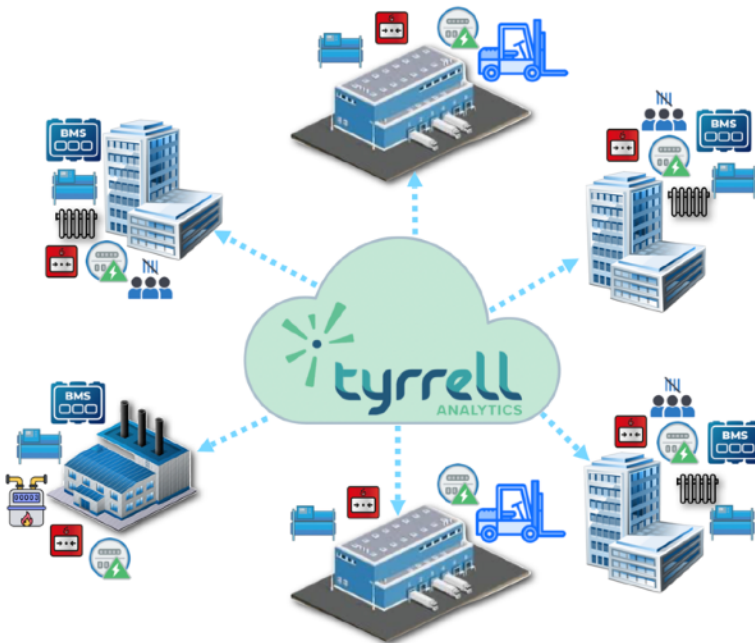


Smart Building Platform with Predictive Analytics

Tyrrell Analytics is a powerful SaaS based Analytics, Visualisation and Reporting platform, bringing benefits to building owners, operators, managers and service providers.



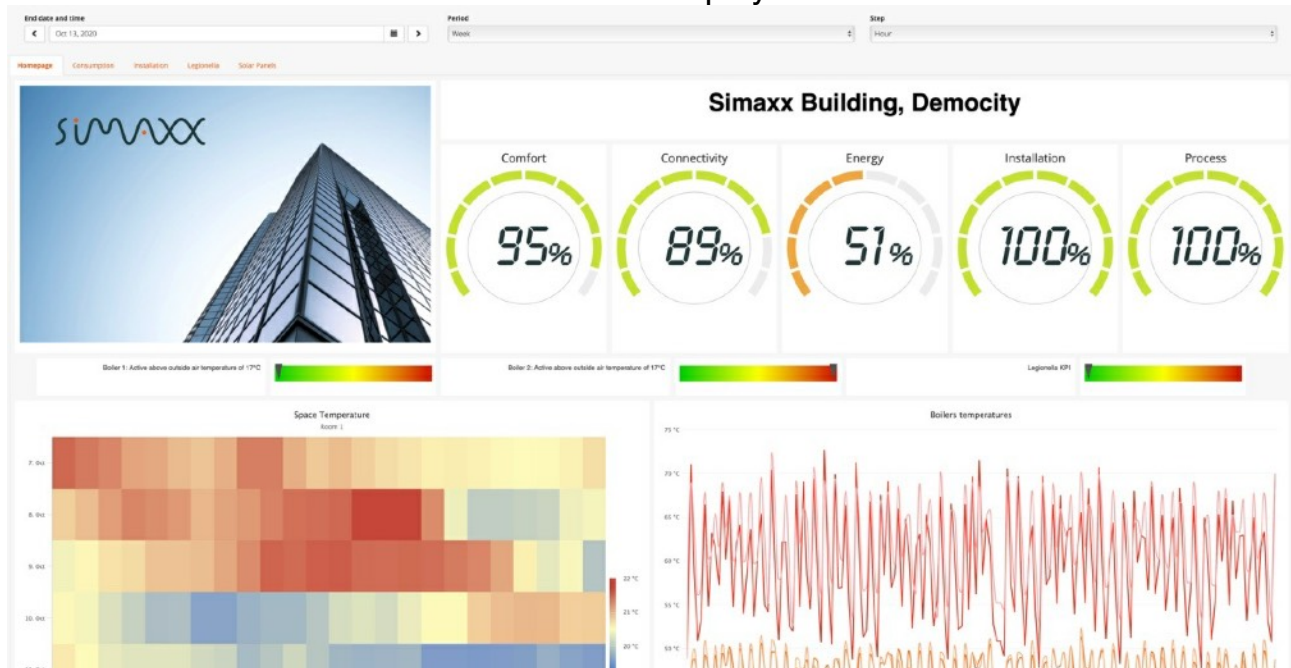
- CONNECT TO THE ASSETS
- DEPLOY IOT AS NEEDED
- GATHER AND SEND DATA
- CREATE ACTIONABLE INSIGHTS
- INCREASE EFFICIENCY
- CALCULATE SAVINGS AND ROI
- TAKE ACTION, SAVE MONEY
- AUTOMATE REPORTING
- ENSURE COMPLIANCE

 **Azure** Cloud Hosted
or on Premises installation

Tyrrell Analytics is a suite of powerful applications hosted in a multi-tenanted resilient environment, delivering value through data collection and insights.

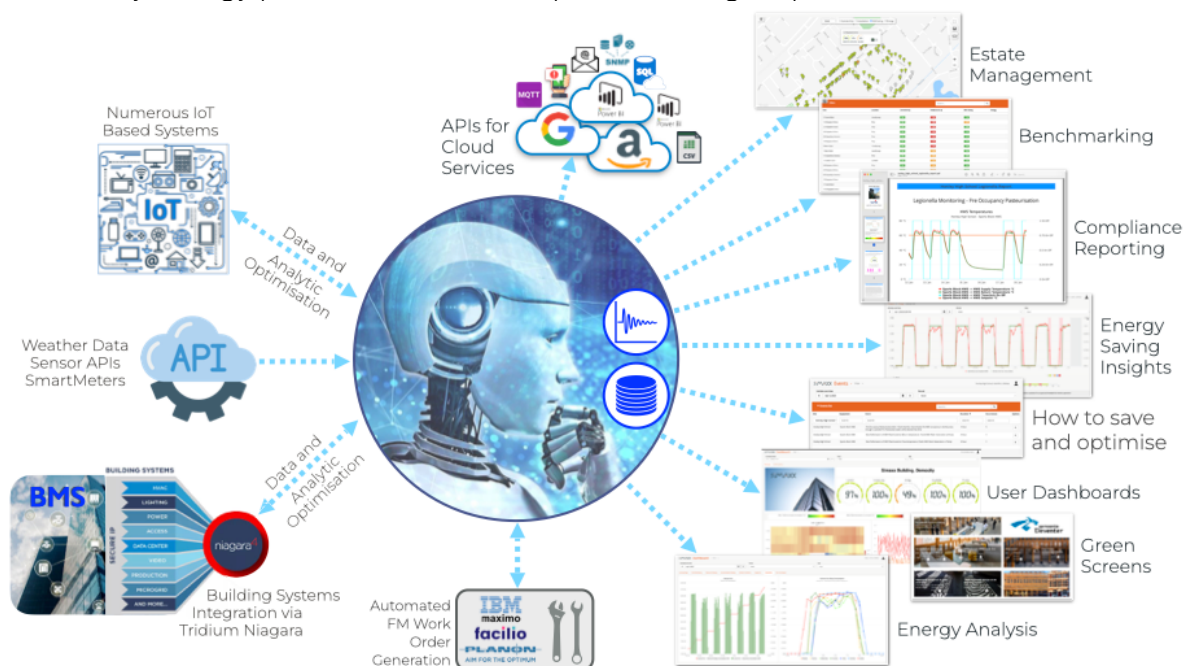


Powerful user dashboards with KPI based displays



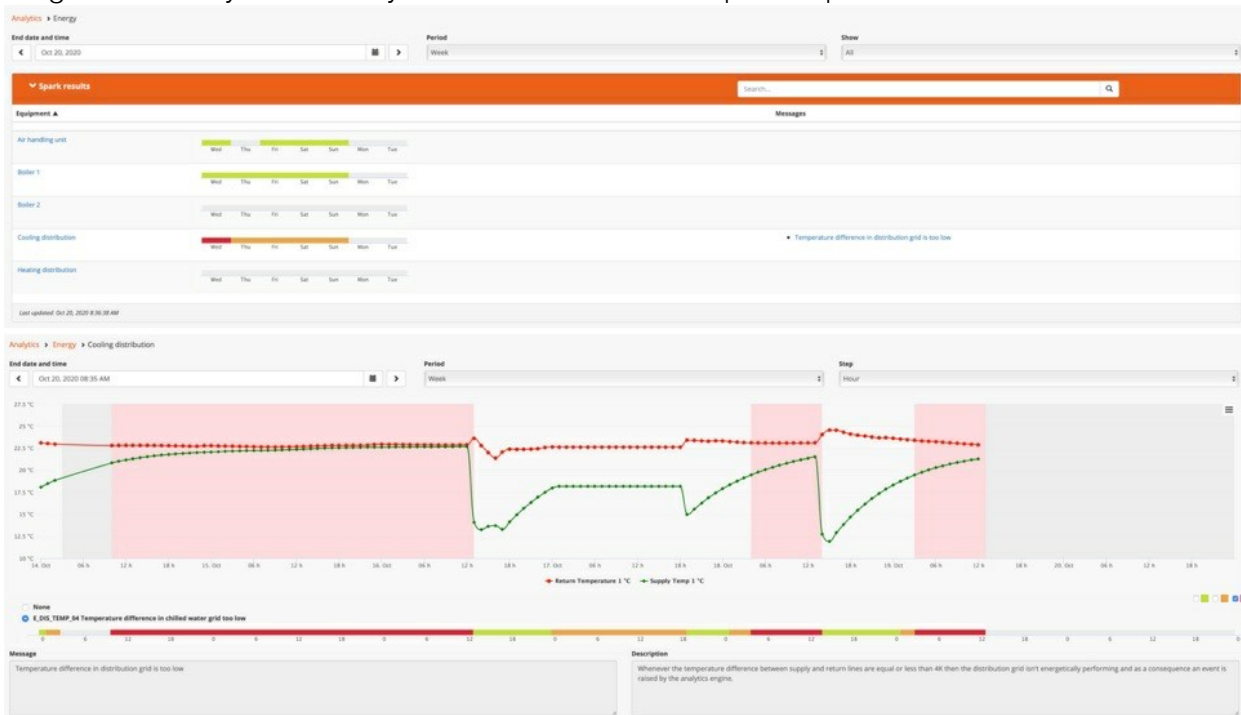
Tyrrell Analytics uses data from the Sensors and other connected systems to gather valuable insights and patterns into how a building works. These insights reduce operating costs and ensure the environment for the occupants is comfortable and compliant with legislation. Tyrrell Analytics provides insights into failed plant and underperforming systems with easy to follow actions to get a real result.

Analytics reports and dashboards provide powerful insights into the energy performance of all buildings large and small, helping owners and operators fulfil their legal obligations regarding sustainability, energy performance and compliance through reports and alerts.



Analytic Insights

The analytics engine continually samples data from the connected systems and performs analysis on that data to generate insights that can be used to address issues where the building may not be performing to the requirements or where energy consumption or carbon emissions are rising. Insights are the events created by the analytical engine when an abnormality is detected and an insight generated as to the nature of the predicted issue. The platform will continually create insights when any abnormality occurs outside of the expected parameters.



Energy Performance Analysis

Tyrrell Analytics displays comparison data from energy metering to compare data sets from previous periods to current periods. Tyrrell Analytics will provide day on day comparisons, weekly and monthly comparisons to enable the user to see how performance increases are achieved as the operator continues to drive down energy consumption and carbon. Analytics also provides energy consumption data compared to baseline load or threshold, taking into account degree day normalisation data for the area, using a locally connected weather station.



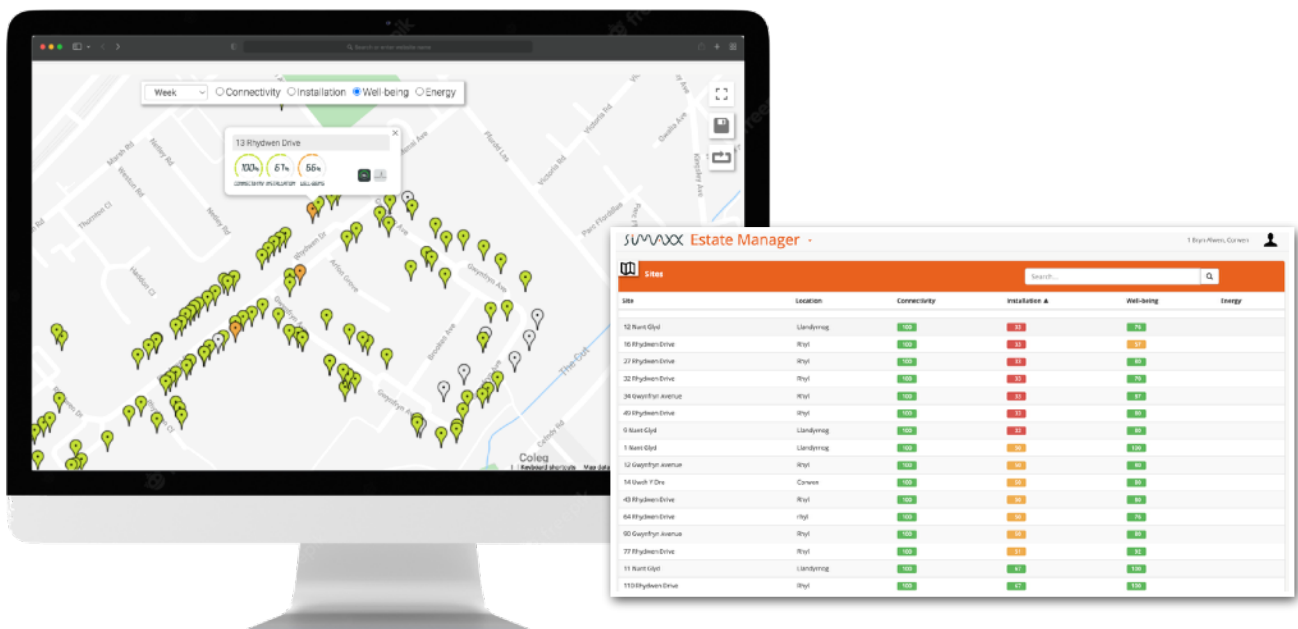
Historian Data Visualisation

Basic visualisations include the ability to create graphs and visualisations of the following type:

- Line graph
- Bar graph (Linear)
- Bar graph (Stacked)
- Scatter plot
- Benchmarking graph (Display data sets with previous time phased comparisons)

Estate Manager and Benchmarking

Tyrrell Analytics provides a map based interface, which can be set as the first page navigated to on login for the user, as required. The Map will show the locations of buildings, where each building is represented by an icon. The user can either scroll around or Zoom In/Out to select an appropriate area. Click one button and the entire estate is presented in a benchmarking view, comparing buildings with one another based on the KPIs.



Map icons have a visual indication of site status, as follows:

- Green: All analytics rules showing OK
- Amber: Warning or other condition
- Red: Attention needed, based on KPI values.
- Grey: Indication that a site is offline or data has not been received for 2 hours or more
- White: No KPI has been configured.

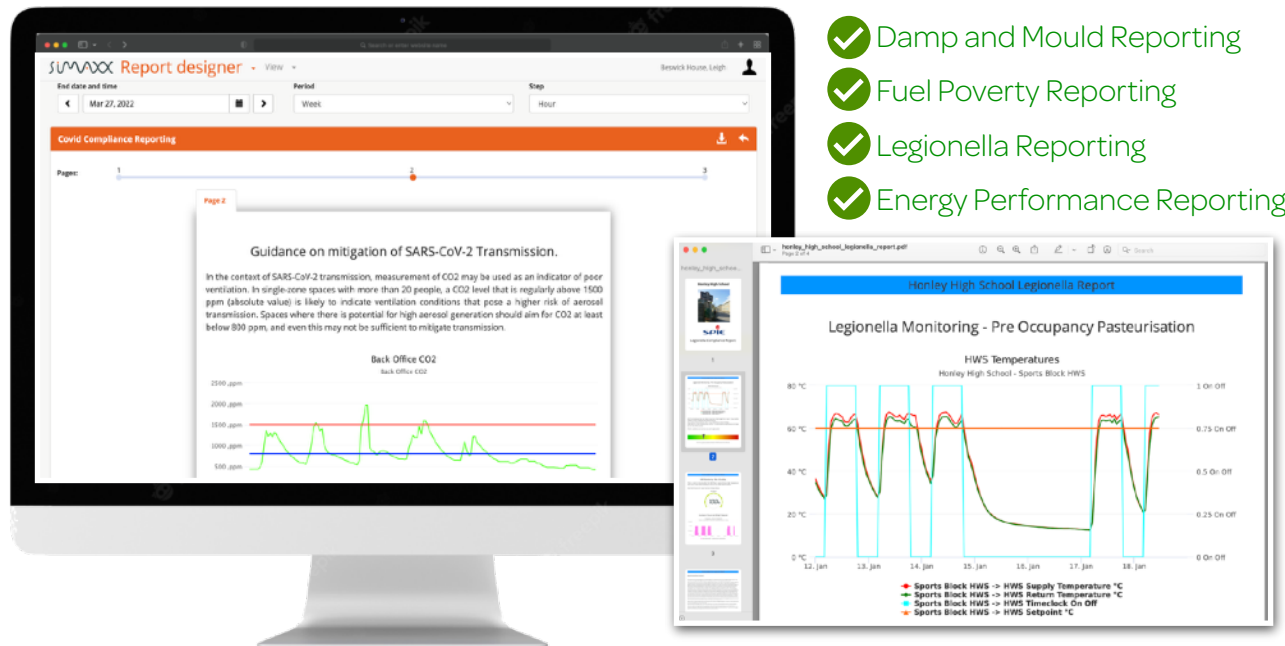
The Push-Pin is coloured based on the highest priority KPI indication. Clicking on the push pin will reveal any insights of present issues.

User Navigation

Selecting a site or clicking on an icon on the map or clicking on a site from within the list view, will navigate to the dashboard gauge overview page for the site, from where, when clicking on a performance gauge, you can view the analytic page to visualise the detail behind the KPI scores. By 'Hovering Over' a target site 'push pin' the eBMS platform should produce a 'tool tip' which will indicate a summary of all KPIs that are configured for that specific site as mini-gauges.

User Reports

Reports can be created using the same technique as the dashboard, right there in the web browser using a simple user interface, which takes data from the Tyrrell Analytics platform. The reports are based on the data produced from the graphs and analytic events created in the platform. The Report creator, is a simple WYSIWYG format and allows reports to be downloaded and sent via email to a system user at fixed intervals using the dispatcher or on a manual basis. The report template creation provides for time based reports dependent on the period selected for the data sets. The example interface can be seen below, where the complete reporting creation tool is available within the HTML5 user interface.



User Management

Tyrrell Analytics is accessible via secure login via standard web browser and operate in accordance the latest security requirements. Users can be assigned different functions and capabilities within the platform, including the ability to view dashboards and graphics and others to be able to edit, create and delete dashboards and analytic rules. Sites, dashboards and capabilities for different users can be accessed and adjusted depending on parameters set by administrator.

Users accounts offer the following functions as a minimum:

- Client Admin - All available functions and systems including user administration
- System Admin - Limited to certain sites or regions and/or functions
- Standard User - Limited to view only, graphing functions, etc
- Consultant / 3rd Party - Limited & time out at intervals set by the Client Admin

Embedded Niagara IoT Platform App

Tridium Niagara reached over 1m instances worldwide in 2021, which reinforces its position as the premier IoT middleware, integration and display platform for buildings. It has more connectivity than any competing solution, with the most capable HTML5 graphics, along with historian, alarm functions, scheduling and data point tagging systems, all built into the framework. Niagara is tightly integrated into Tyrrell Analytics as a dedicated User App. Using the powerful security included within Niagara, Tyrrell Analytics automatically and securely connects to Niagara to deliver a single sign-on, providing the operator with a unified user experience for Analytics, Reporting and Visualisation of not just Tyrrell Analytics Platform data and dashboards, but real-time graphics from connected systems.



Corporate Dashboard Display

Tyrrell Analytics can also provide corporate focussed dashboard displays that can be used to provide user friendly feedback on project performance to staff and visitors as to the progress of the project and its objectives. These displays shall be visually appealing and allow for the inclusion of custom images, web based video sources such as YouTube videos and other user friendly media. These types of dashboard displays are capable of presenting multiple dashboard screens automatically with time intervals in between the display of each one in Kiosk Mode.

